William Hilton Parkway Gateway Corridor Independent Review Advisory Committee Meeting

January 10th, 2024

LOCHMUELLER GROUP

Agenda

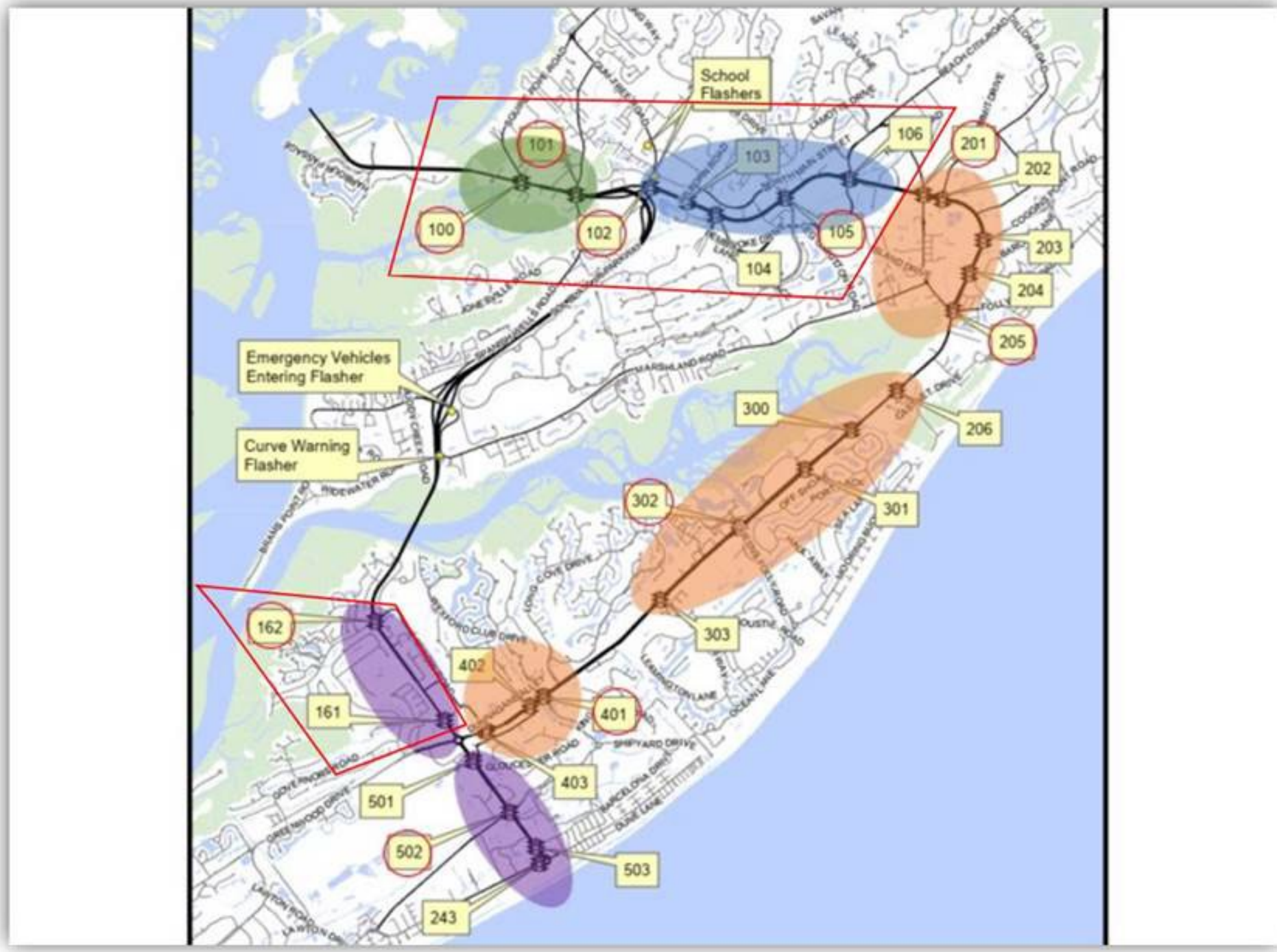
- General Observations Noted During the Site Visit
- Status of Growth Rate Determination
- Update on Modeling Capabilities
  - Approach to Alternatives

Site Visit (December 11th & 12th, 2023)

- Performed Intersection Observations and Travel Time Runs
  - Documented Saturation Flow Rates, Queue Lengths, Turning Speeds, Lane Utilization, and Noteworthy Driver Tendencies
  - Utilized GPS & video based corridor runs to document actual travel speeds and queues between intersections; evaluate how adaptive system affects progression along the corridor versus base coordinated timing plans
- General Intersection Observations:
  - Adaptive system appears to be helping facilitate progression along WHP.
  - Mainline green time allows for standing and rolling queues to dissipate at most intersections.
  - Select intersections/movements w/ notable congestion
  - Impacts of distracted drivers

Site Visit (December 11th & 12th, 2023)

- Travel Time Run Observations:
  - Adaptive function is evident when plotting GPS trajectories on base coordination plan time-space diagrams
  - Windmill Harbor signal running Free during all peak periods results in variable progression along the corridor
  - Eastbound queue across the bridges is relatively rolling in nature
  - Stops were frequent when crossing from the Squire Pope & Spanish Wells subsystem to the subsystem from Gumtree to the east
  - Travel time was relatively reliable from Sea Pines circle to the Cross Island & WHP interchange, until poor operations through Squire Pope


School Flashers
Emergency Vehicles Entering Flasher
Curve Warning Flasher
101
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102
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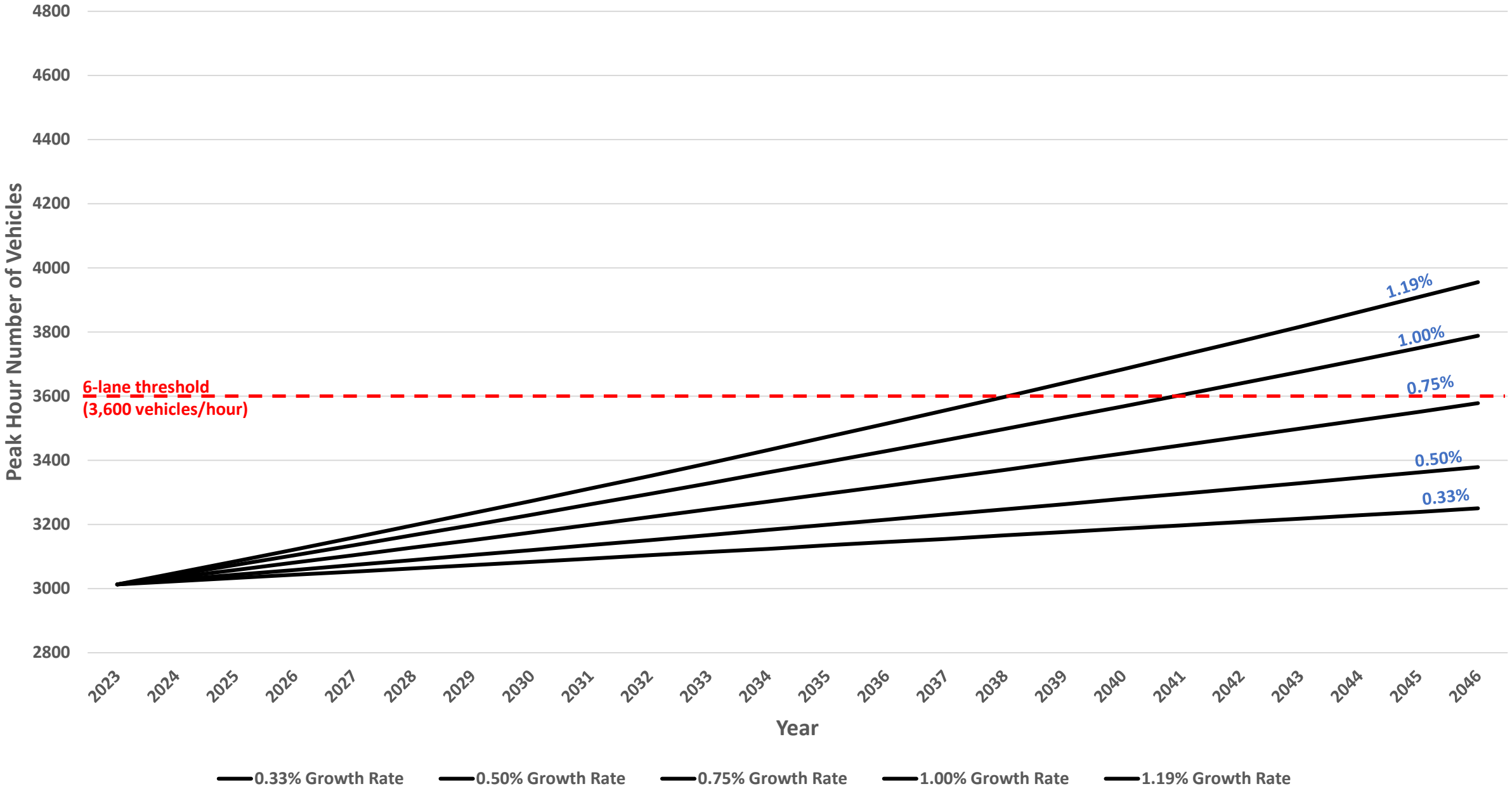
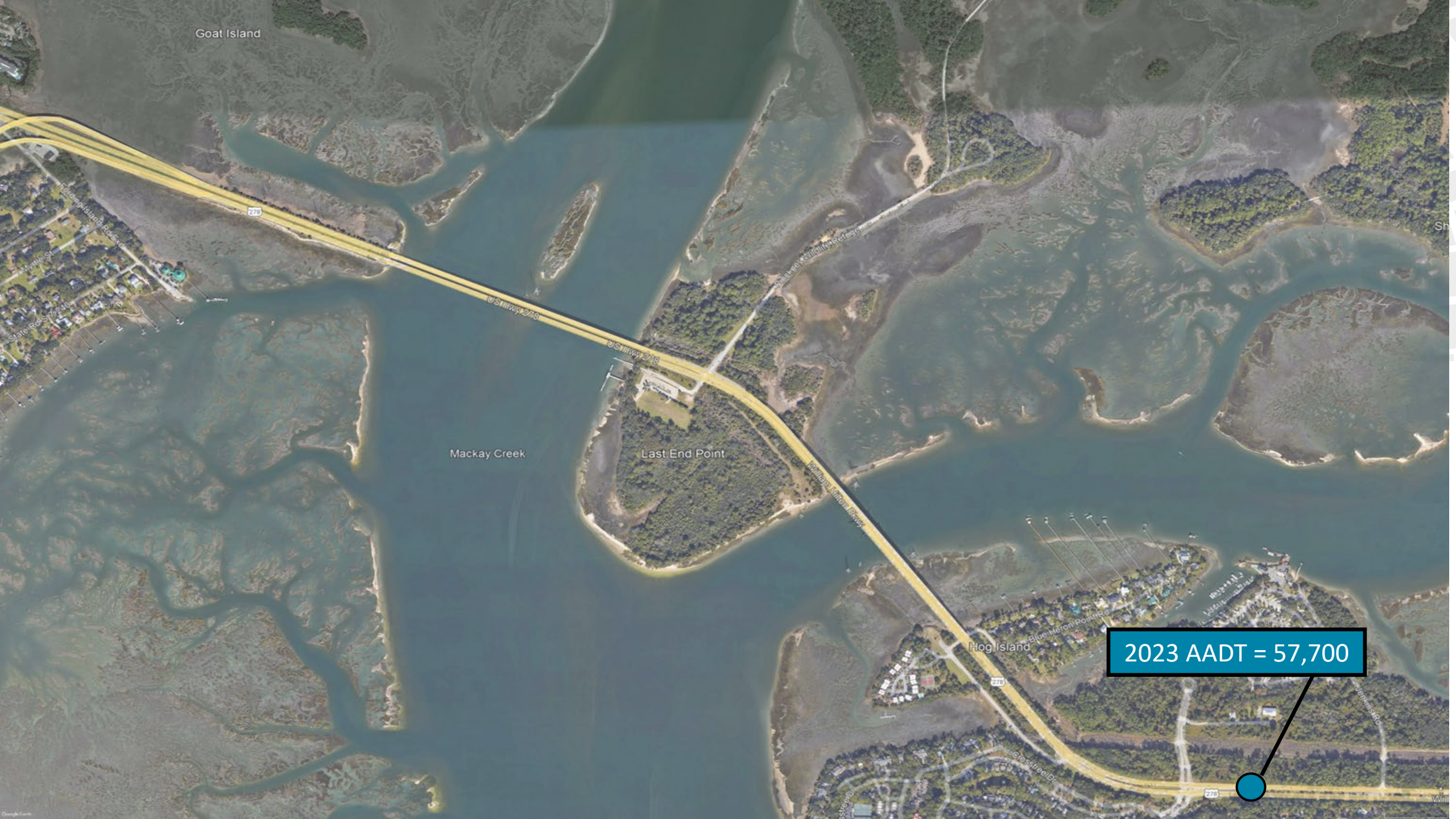
243

Status of Growth Rate Determination

- Received available information from Town staff on 1/3/2024 :
  - Number of Short–Term Rental Units + Tax Revenue per year (**only 2023 data available*)
  - Accommodation & Hospitality Tax Revenues per year (2018-2023)
- Currently determining if a "Quick" model can be developed for estimating traffic growth, based upon criteria below:
  - Historic traffic flow trends
  - Number of workers coming to HHI from mainland
  - Number of visitors to HHI
- Anticipate presenting growth rate findings at 2/14/2024 Committee Meeting.


US 278: Various Growth Rates and Resulting Traffic Volumes in the Peak Hour
Peak Hour Number of Vehicles
4800
4600
4400
4200
4000
3800
3600
3400
3200
3000
2800
6-lane threshold
(3,600 vehicles/hour)
1.19%
1.00%
0.75%
0.50%
0.33%
2023
2024
2025
2026
2027
2028
2029
2030
2031
2032
2033
2034
2035
2036
2037
2038
2039
2040
2041
2042
2043
2044
2045
2046
Year
0.33% Growth Rate
0.50% Growth Rate
0.75% Growth Rate
1.00% Growth Rate
1.19% Growth Rate


Goat Island
Mackay Creek
Last End Point
Hog Island
2023 AADT = 57,700

HCM Planning Level Capacity

Exhibit 16-16
Generalized Daily Service Volumes for Urban Street Facilities

K-Factor	D-Factor	Daily Service Volume by Lanes, LOS, and Speed (1,000 veh/day)											
		Two-Lane Streets				Four-Lane Streets				Six-Lane Streets			
		LOS B	LOS C	LOS D	LOS E	LOS B	LOS C	LOS D	LOS E	LOS B	LOS C	LOS D	LOS E
Posted Speed = 30 mi/h													
0.09	0.55	NA	1.7	11.8	17.8	NA	2.2	24.7	35.8	NA	2.6	38.7	54.0
	0.60	NA	1.6	10.8	16.4	NA	2.0	22.7	32.8	NA	2.4	35.6	49.5
0.10	0.55	NA	1.6	10.7	16.1	NA	2.0	22.3	32.2	NA	2.4	34.9	48.6
	0.60	NA	1.4	9.8	14.7	NA	1.8	20.4	29.5	NA	2.2	32.0	44.5
0.11	0.55	NA	1.4	9.7	14.6	NA	1.8	20.3	29.3	NA	2.1	31.7	44.1
	0.60	NA	1.3	8.9	13.4	NA	1.7	18.6	26.9	NA	2.0	29.1	40.5
Posted Speed = 45 mi/h													
0.09	0.55	NA	7.7	15.9	18.3	NA	16.5	33.6	36.8	NA	25.4	51.7	55.3
	0.60	NA	7.1	14.5	16.8	NA	15.1	30.8	33.7	NA	23.4	47.4	50.7
0.10	0.55	NA	7.0	14.3	16.5	NA	14.9	30.2	33.1	NA	23.0	46.5	49.7
	0.60	NA	6.4	13.1	15.1	NA	13.6	27.7	30.3	NA	21.0	42.7	45.6
0.11	0.55	NA	6.3	13.0	15.0	NA	13.5	27.5	30.1	NA	20.9	42.3	45.2
	0.60	NA	5.8	11.9	13.8	NA	12.4	25.2	27.6	NA	19.1	38.8	41.5

Notes: NA = not applicable; LOS cannot be achieved with the stated assumptions.
General assumptions include no roundabouts or all-way STOP-controlled intersections along the facility; coordinated, semiactuated traffic signals; Arrival Type 4; 120-s cycle time; protected left-turn phases; 0.45 weighted average *g/C* ratio; exclusive left-turn lanes with adequate queue storage provided at traffic signals; no exclusive right-turn lanes provided; no restrictive median; 2-mi facility length; 10% of traffic turns left and 10% turns right at each traffic signal; peak hour factor = 0.92; and base saturation flow rate = 1,900 pc/h/ln.
Additional assumptions for 30-mi/h facilities: signal spacing = 1,050 ft and 20 access points/mi.
Additional assumptions for 45-mi/h facilities: signal spacing = 1,500 ft and 10 access points/mi.

- 2-Lane (one in each direction with left turn lanes at busy intersections and coordinated signals), undivided streets are considered almost congested with a volume of 8,900 to 18,300 vehicles per day[1].
- 4-Lane, undivided street (two in each direction with left turn lanes at busy intersections and coordinated signals), – 18,600 to 36,800 vehicles per day[1].
- 6-Lane, divided street (three in each direction with left turn lanes at busy intersections and coordinated signals), – 29,100 to 55,300 vehicles per day[1].

QUESTIONS?

https://www.islandpacket.com/news/local/traffic/article235209867.html

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